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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,505	09/30/2003	Arvind Arun Pande	VRT0097US	6043
60429	7590	03/23/2006	EXAMINER	
CSA LLP 4807 SPICEWOOD SPRINGS RD. BLDG. 4, SUITE 201 AUSTIN, TX 78759			KOC, TARIK	
		ART UNIT		PAPER NUMBER
				2167

DATE MAILED: 03/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/675,505	PANDE ET AL.	
	<b>Examiner</b> Tarik C. Koc	<b>Art Unit</b> 2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### **Status**

- 1) Responsive to communication(s) filed on 30 September 2003.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### **Disposition of Claims**

- 4) Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-24 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### **Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### **Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### **Attachment(s)**

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_.
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

## DETAILED ACTION

1. Claims 1-24 are pending in this application.

### *Claim Objections*

2. Claims 4 and 12 objected to because of the following informalities: "each region of the at least one region" should be "each of the at least one region". Appropriate correction is required.
3. Claim 14 objected to because of the following informalities: "replicaiton" should be "replication". Appropriate correction is required.

### *Claim Rejections - 35 USC § 101*

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-3, 6, 17, 18, 20, 21, 22, and 24 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

### **MPEP 2106 IV.B.2.(b)**

A claim that requires one or more acts to be performed defines a process. However, not all processes are statutory under 35 U.S.C. 101. Schrader, 22 F.3d at 296, 30 USPQ2d at 1460. To be statutory, a claimed computer-related process must either: (A) result in a physical transformation outside the computer for which a practical application in the technological arts is either disclosed in the specification or would have

been known to a skilled artisan, or (B) be limited to a practical application within the technological arts.

Claims 1, 17, and 21 recite determining that a change occurred to data. The claims do not result in a physical transformation. Further, the claims do not result in a useful, concrete, or tangible result; the substance of the claims is a manipulation of abstract ideas with no real world value. Claims 2, 3, 6, 18, 20, 22, and 24, dependents of these independent claims, do not introduce useful, concrete, or tangible results and are rejected for the same reason.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-8, 11, 13, and 14-24 are rejected under 35 USC 103(a) as being obvious over Huras. (U.S. 2005/0278393 A1), in view of Shih et al. (U.S. 6,615,223 B1) (hereinafter Shih).

7. Regarding claim 1, Huras teaches determining that a change occurred to data in a first region of a first plurality of regions of a first volume (paragraph 0036, lines 1-3). Huras further teaches processing the log files in a discriminatory manner, so that only log files corresponding to a certain region of a first volume are replayed during backup

(paragraph 0036, line 7; see also paragraph 0041); such that a change could be recorded but not replayed as long as a region is not recovery, which is the equivalent of without including a first region in a set of regions designated for processing. Huras does not explicitly disclose where the processing is replication to a second volume. In the same field of endeavor (database backup), Shih discloses replication of logged changes from one volume to a second volume (column 4, lines 27-31, et seq.).

Accordingly, it would have been obvious to a person of ordinary skill in the art to have incorporated Shih's teachings of replication from one volume to another with Huras's teachings of determination that a change occurred and discriminatory replay of log files based on the associated region of a volume to obtain a determination that a change occurred to a region of data in a volume without designating that region for replication to a second volume. Shih suggests a need for more efficiency in replication systems in column 3, lines 36-38. Huras suggests mirroring an organization's data structures efficiently in paragraph 0006.

Regarding claim 2, Huras does not explicitly disclose wherein the change occurred to the data in the first region as a result of restoring at least one region of the first plurality of regions from a second set of regions of a third volume. In the same field of endeavor (database backup), Shih discloses the use of replication of data to make a plurality of backup copies that can be used to restore a database in the event of a failure in lines 18-21 of column 1. Shih goes on to disclose in column 4, lines 27-31 that *any* data changes at a first replication site are replicated to a plurality of databases. The

motivation for combining the teachings of Shih with the teachings of Huras is the same as applied in the rejection of claim 1.

Regarding claim 3, wherein the third volume is a snapshot of the first volume at one point in time (Huras, paragraph 0035).

Regarding claim 4, wherein a second region of the first plurality of regions is included in the set of regions designated for replication when a respective change to the second region is added to a log comprising at least one change to at least one region, wherein each of the at least one region in the log is designated for replication to the second volume, Huras teaches logging of changes to a second plurality of regions in paragraph 0036; see also paragraph 0042. In the same field of endeavor (database backup), Shih discloses replication of logged changes from one volume to a second volume (column 4, lines 27-31, et seq.). The motivation for combining the teachings of Shih with the teachings of Huras is the same as applied in the rejection of claim 1.

Regarding claim 5, wherein a third region of the first plurality of regions is included in the set of regions designated for replication when a second respective change occurs to the third region, and the second respective change to the third region cannot be added to the log. Huras teaches logging of changes to a plurality of regions in paragraph 0036; see also paragraph 0042, which is the equivalent of wherein a third region of the first plurality of regions is logged. Huras teaches in paragraph 0042, line 9 wherein a

change cannot be added to a log. In the same field of endeavor (database backup), Shih teaches replication of logged changes from one volume to a second volume (column 4, lines 27-31, et seq.). The motivation for combining the teachings of Shih with the teachings of Huras is the same as applied in the rejection of claim 1.

Regarding claim 6, adding the first region to the set of regions designated for replication. The changes logged in Huras are not designated for processing unless a corresponding region in a volume associated with a log is being recovered. Therefore, when a tablespace, which is the equivalent of a region in a volume, is designated for recovery in accordance with the invention disclosed in Huras, the associated log of changes is then processed. Huras again does not explicitly disclose where the processing of logged changes is replication to a second volume. In the same field of endeavor (database backup), Shih teaches replication of logged changes from one volume to a second volume (column 4, lines 27-31, et seq.). The motivation for combining the teachings of Shih with the teachings of Huras is the same as applied in the rejection of claim 1.

Regarding claim 7, Huras does not explicitly disclose replicating each region in the set of regions designated for replication from the first volume to the second volume. Shih teaches replication of logged changes from one volume to a second volume (column 4, lines 27-31, et seq.). The motivation for combining the teachings of Shih with the teachings of Huras is the same as applied in the rejection of claim 1.

Regarding claim 8, Huras discloses selective processing of log files containing changes to backup versions of log files, namely processing of log files containing changes corresponding to a region in a volume (Huras, paragraph 0032; see also paragraph 0036). In Huras only select regions are processed. Huras does not disclose replication of the selected regions. Shih discloses the equivalent by disclosing replication of changes (Shih, column 4, lines 27-31, et seq.). The motivation for combining the teachings of Shih with the teachings of Huras is the same as applied in the rejection of claim 1.

Regarding claim 11, wherein the data are accessible during the restoring (Huras, paragraphs 0069 and 0070). Huras discloses in paragraphs 0069 and 0070 recovery of selected tablespaces, and in these same paragraphs discloses how the method obtains locks for only those tablespaces, thus data in the database are accessible for update during the restore process.

Regarding claim 13, wherein a second region of the first plurality of regions is included in the set of regions designated for replication when a second respective change occurs to the second region, and the second respective change cannot be added to a log of changes to at least one region, wherein each region of the at least one region in the log is included in the set of regions designated for replication. Huras teaches logging of changes to a plurality of regions in paragraph 0036; see also paragraph 0042, which is

the equivalent of wherein a second region of the first plurality of regions is logged.

Huras teaches in paragraph 0042, line 9 wherein a change cannot be added to a log. In the same field of endeavor (database backup), Shih teaches replication of logged changes from one volume to a second volume (column 4, lines 27-31, et seq.). The motivation for combining the teachings of Shih with the teachings of Huras is the same as applied in the rejection of claim 1.

8. Claims 9, 10, and 12 are rejected under 35 USC 103(a) as being obvious over Huras (U.S. 2005/0278393 A1), in view of Shih et al. (U.S. 6,615,223 B1) (hereinafter Shih) as applied to the rejection of claim 1, in further view of Lomet (U.S. 6,578,041 B1).

Regarding claim 9, Huras and Shih disclose restore of select regions of a database but do not explicitly disclose wherein the replicating continues during the restoring. In the same field of endeavor (database backups), Lomet teaches online replication of a database that occurs in conjunction with normal database activity (column 14 lines 1-3).

Accordingly, it would have been obvious to a person of ordinary skill in the art to have incorporated Lomet's teachings of online replication of a database with Huras and Shih's teachings of restore of select regions of a database to obtain a database wherein replication continues during restoring. Lomet suggests a need in column 5, lines 59-62 where a description is provided of conventional databases lacking on-line backup capability. Shih suggests a need for more efficiency in replication systems in column 3, lines 36-38.

Regarding claim 10, Huras and Shih do not explicitly disclose wherein the data are accessible during the replicating. In the same field of endeavor (database backups), Lomet teaches wherein the data are accessible during the replicating. (Lomet, column 3, lines 26-27).

Accordingly, it would have been obvious to a person of ordinary skill in the art to have incorporated Lomet's teachings of online backups with Huras and Shih's teachings of replication of regions from one volume to another volume for the purpose of improved availability to data. Lomet suggests a need in column 5, lines 59-62 where a description is provided of conventional databases lacking on-line backup capability. Huras suggests mirroring an organization's data structures efficiently in paragraph 0006.

Regarding claim 12, Huras and Shih disclose a set of regions designated for replication in a log as applied in the rejection of claim 7. Huras and Shih do not explicitly disclose wherein the determining that the change occurred comprises determining that the first region is one of a set of pending regions in a log, wherein the log comprises at least one change to at least one region, each region of the at least one region in the log is included in the set of regions designated for replication, and the replicating has not replicated the set of pending regions. In the same field of endeavor (database backups), Lomet teaches pending regions that have yet to be replicated to a backup database (column 14 lines 1-3).

Accordingly, it would have been obvious to a person of ordinary skill in the art to have incorporated Lomet's teachings of pending regions with Huras and Shih's teachings of replication of regions from one volume to another volume for the purpose of improved availability to data. Lomet suggests a need in column 5, lines 59-62 where a description is provided of conventional databases lacking on-line backup capability. Huras suggests mirroring an organization's data structures efficiently in paragraph 0006.

9. Claims 14-16 are essentially the same as claims 6-8 except that they set forth the claimed invention as a system rather than a method and are rejected for the same reason as applied hereinabove.

10. Claims 17-20 are essentially the same as claims 1, 14, 15, and 16 respectively except that they set forth the claimed invention as a system rather than a method and are rejected for the same reason as applied hereinabove.

11. Claims 17-20 are essentially the same as claims 1, 14, 15, and 16 respectively except that they set forth the claimed invention as a computer readable medium rather than a method and are rejected for the same reason as applied hereinabove.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tarik C. Koc whose telephone number is 571-272-6725. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on 571-272-4107. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tarik C Koc  
Examiner  
Art Unit 2167

03/17/2006

  
SHAHID ALAM  
PRIMARY EXAMINER